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The Revolution in Farming	Sherman E. Johnson	1
Farm Life and Mechanization	Arthur Raper	4
1947 Production Goals	Phillip F. Aylesworth	5
Implications of Rising Land Values	J. A. Baker	6
What's Ahead for Citrus Producers?	Hugh L. Cook	7

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## The Revolution in Farming

WHILE industry and science were discovering and producing the atomic bomb, the flying fortress, television and other marvels, the farmers of America were quietly bringing about a revolution in agriculture that is of far-reaching significance.

Today, American farmers are producing a third more products for the market than they did before the war. And they have been doing it with 10 percent fewer workers and very little increase in the land used for crops and pasture. Those who insist on comparing the increase in agricultural production with the even larger increases in industrial production during the war must remember that manufacturing plant capacity is now much larger than before the war and the number of workers in industry are about a fifth more.

True, farmers have been generally blessed with favorable weather during the past half-century. But only a fraction of the increased production can be attributed to the favorable weather. Witness, for example, that farmers set a new production record in 1942 when the growing season was one of the best in history; but in 1945, when the weather was not nearly so good they excelled the

1942 record. And this year production is likely to come out by some 1 or 2 percent above 1945. No, the almost never-ending procession of new production records during the war is not just the result of the weather.

Most of the increase is the direct result of the quick adoption by farmers from coast-to-coast and border-to-border of new and better ways of doing the job; combined, of course, with long hours of hard work.

The tremendous advance in the mechanization of so many farms in recent years is probably the most important force bringing about the revolution in agriculture. The over 2 million tractors now on farms are double the number a decade ago, yet farmers will probably have from 2½ to 3 million units by 1950. Today, at least a third of the farmers have tractors compared with only 14 percent in 1930, and the proportion is bound to be even more in the years ahead.

Widespread adoption of the general-purpose tractor, adapted for use on smaller farms and a variety of farm jobs, together with the greatly increased use of rubber tires on tractors and other machines, have stim-

## Food for 50 Million More

THE food farmers have produced in each of the last half-dozen years has been enough to feed about 50 million more people than was possible under the average annual output in 1935-39, and this assumes the same dietary level for both periods. This many more people is over a third of the population of the United States.

Actually, though, American civilians in recent years have been getting about 10 percent more food per capita than they did in 1935-39, despite the fact that about a fourth of the food output went to the military, lend-lease, and for other emergency war uses.

ulated the mechanization of many farm operations. This has led to the general adoption of scores of machines designed specifically for tractors instead of animal power, which in turn has kept up the demand for more tractors. The important point is that the full effects of this mechanization have come largely within the past decade.

In the immediate years ahead mechanization will go on at even a faster pace. It seems quite likely that while farmers have reasonably good incomes they will turn more and more to new and better machines, such as improved corn pickers suitable for small acreages; small combines adaptable to a variety of land conditions and crops, pick-up hay balers or field choppers that almost completely mechanize hay harvesting; improved cotton pickers; flame weeder; sugar-beet planters used with segmented seed, thereby eliminating thinning operations later; and a host of other machines for the field and farmstead.

As mechanization progresses the time required for various farm operations will become less and less. For

example, a corn farmer can prepare and plant 3 acres of land with tractor and power equipment in the same time he could do only 1 acre with animal power. And, if he puts the tractor on a 24-hour schedule, not feasible with work animals, he can do the job seven times faster than with animal power. For another example, a dairy farmer can milk a herd of cows by machine in about half the time required for hand milking.

Along with increased mechanization in bringing on the revolution in agriculture is the greatly increased use of fertilizer and lime. Farmers are now using about twice the amount of fertilizer and three times the amount of lime they used a decade ago. And it certainly is not out of the question that the quantities used now might be doubled in the next 10 years. Greater use of fertilizer and lime, together with the cumulative benefits of better soil management of the past dozen years, has contributed much in the procession of one yield record after another of practically all major crops during the war.

Third in the important forces bringing about the revolution in agriculture is the unprecedented adoption by farmers generally of improved crop varieties in recent years. Hybrid seed corn is probably the most outstanding example. In the past decade the acreage planted with hybrid seed has jumped from a negligible percentage (5 percent) of the total corn acreage to over two-thirds. Many hybrid strains designed for particular regions outside of the Corn Belt have been developed in just the last year or two, so farmers in the South and elsewhere are bound to plant more and more of their acreages in hybrid seed. Because yields from hybrid corn are about a fifth more than from open-pollinated, the 3-billion bushel corn crops now seem to be the rule instead of the exception.

As with hybrid corn, farmers have been making wider use, in just the last few years, of higher-yielding, more disease- and weather-resisting

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varieties of oats, wheat, potatoes, tobacco, cotton, legume hays, soybeans, peanuts, flaxseed, many fruits and truck crops, to name some of the more important. And even more are on the way.

Of course, these far-reaching changes would have been less effective if the extensive soil conservation and improvement practices of the thirties had not helped the soil to stand up under the heavy strain during the war.

The technological advances in mechanization, use of fertilizer and lime, improved crop varieties and soil conservation did not come full blown, almost overnight as it were, at the outbreak of the war. Most of the changes have been in the making for several years, though some were in a more or less dormant state during the drouth and depression. The changes would have come anyway, but over a longer period. It was the war and the incessant demand for farm products at good prices that speeded up the process, giving it the revolutionary character.

It is in speeding up these technological changes that farmers have

revolutionized the productive capacity of agriculture. They have increased the production per acre by a fifth in the past decade. Output per worker is over a third more. They have kept the gross production of all agricultural commodities during the war and after at least a fourth more than before the war. And their production of commodities for human use has been a third more than before the war.

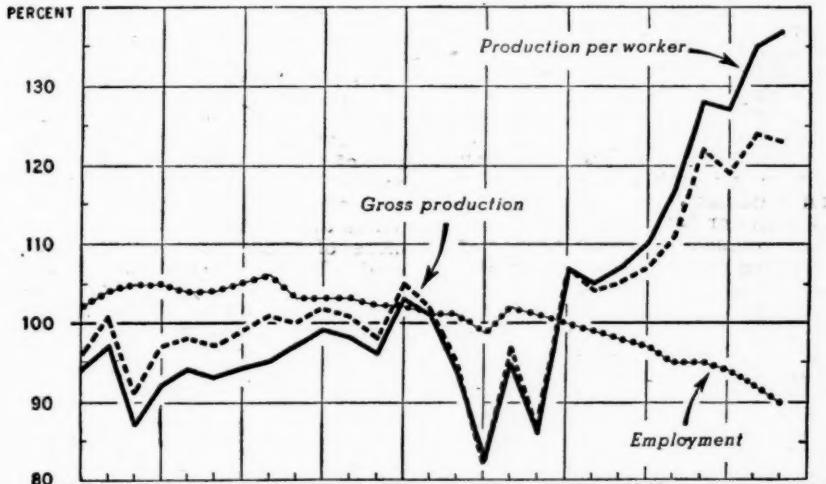
Today the productivity of American farms is the greatest it has ever been, and it is likely to increase in the years ahead. As long as farmers are reasonably prosperous they will continue the technological advance, even though it may be at a bit slower pace than during the war.

SHERMAN E. JOHNSON, *Ass't Chief  
Bureau of Agricultural Economics.*

A novelty before the war, mung beans, used chiefly in oriental dishes have become an important farm enterprise in Oklahoma. The major producing State, it raised 24 million pounds on 100 000 acres in 1945, equal to 10 percent of its cotton acreages that year.

#### GROSS FARM PRODUCTION, FARM EMPLOYMENT, AND GROSS PRODUCTION PER WORKER, UNITED STATES, 1919-45\*

INDEX NUMBERS (1935-39=100)



\*PRELIMINARY. GROSS FARM PRODUCTION MEASURES THE TOTAL PRODUCT OBTAINED FROM FARM LAND AND FARM LABOR RESOURCES IN EACH CALENDAR YEAR.  
DATA FOR 1944 AND 1945 ARE PRELIMINARY.

## Farm Life and Mechanization

**F**ARMERS today more than ever before want up-to-date farm homes, more home conveniences, a little leisure, and better opportunities to keep up with what is going on in the world. It takes money to do these things. The larger income during the war enabled farmers to get some of them and plan for others. So farmers will continue to turn more and more to machines because their use usually means they can operate larger acreages at less cost and thus get larger incomes.

Although farm mechanization made its most rapid advance during the past decade, it will likely progress even faster in the years ahead. This will mean still larger farms, fewer farm families, less reliance on hired workers, more buying and selling through cooperatives, and a further shift toward towns of many group activities.

During the past quarter century farms have been getting larger and fewer in number. The average size farm has increased a third in this time, from 148 to 195 acres. Farmers in the Corn and Wheat Belts, where machinery is used more widely than elsewhere, saw the greatest increase in the size of farms as well as the greatest proportionate decrease in numbers. This change has also been getting under way in the South during the past few years as cotton acreages have been reduced and as tractors have come into more extensive use. This trend in the South will continue more rapidly in the future as the mechanical cotton picker, flame weeder, and sugar-cane cutter are adopted more widely.

There has been a net decrease in the number of farm families on farms during the last two and a half decades, averaging about 22,000 families a year even though some years have seen an increase. Inducements of higher pay in industry and better living in urban areas have been potent forces attracting many off farms. At the same time continued mechanization and enlargement of farms have forced many away. As farms become more mechanized there is less dependence on hired workers. This has been going on for sometime in the Corn Belt and Wheat Areas, is well under way in the commercial Dairy Areas,

and is now getting started in the Cotton Belt. It is also true of many fruit and vegetable areas.

The relative scarcity of farm workers on the one hand and the necessity of paying high wages on the other have stimulated mechanization in recent years. And once farmers buy machinery, particularly if expensive, they continue to use it almost irrespective of the relative cost of labor, for this is the only way they can realize a return on such investments. Moreover they usually find that machinery is more efficient. As mechanization advances, an increasingly large proportion of farmers who do their own work will become less dependent on hired workers. Thus it seems quite certain that farm families will leave farms at a faster rate during the next decade than they have during the previous two and a half decades.

Another means whereby farmers increase their incomes and at the same time cut their operating costs is by selling and buying through cooperatives. In 1945 two-thirds of all farmers were members of co-ops, compared with only about half a decade earlier. Last year the co-ops did  $5\frac{1}{3}$  billion dollars worth of business as against  $1\frac{1}{2}$  billion 10 years earlier. Farm cooperatives have greatly increased their services in recent years and are likely to continue to do so in the future, thus providing farmers with larger net returns.

Increased mechanization along with wider use of cooperatives have centered more and more of the business activities of farmers in towns. The auto and improved roads, the consolidated schools located in trading centers, and the location of the office of the agricultural agent and other public agencies in the county seats have all contributed to this trend. Farmers are now shifting the center of their activities from the smaller to the larger towns as they become increasingly dependent on specialized services in connection with the purchasing of supplies, marketing of farm products, and maintenance of machinery.

The general living level of the farm population is constantly rising, and a greater degree of unity among farm people seems to be developing.

Nonetheless, the housing, health, and educational problems of the migrant farm workers continue as do those of the low-income farm tenant operators and wage hands in the South, the low-income owner-operators in the Appalachian Highlands, the Great Lakes Cut-over, and the Spanish-American Southwest.

Taking the Nation as a whole, farm homes have been in recent years and will continue to be equipped with modern conveniences at a rapid rate. The proportion with electricity rose from less than one-tenth in 1920 to nearly half in 1945, radios from a little over one-fifth in 1930 to four-fifths in 1945, and mechanical refrigerators from about 15 percent in 1940 to over 30 percent in 1945. Running water and central heat are also increasing rapidly in areas where farm incomes are highest.

The development of a greater unity among rural people is shown by the increase of cooperative activities, and by the sense of achievement that commonly accompanies the closing out of the last foreign-language newspaper in a county, or the holding of the last foreign-language service in a church, or the increasing neighborliness between nationality groups. On the west coast, where the varied population elements are still in something of a state of suspension, there are clear evidences in many sections of more understanding and willingness to work together in matters pertaining to employer-employee relations and working conditions. And in the South there is an increasing tendency for the Negro group to be included in activities designed to improve such basic community services as health and general public welfare.

The increasing mechanization and attendant changes that have already occurred in the rural areas have caused a shift away from subsistence farming and barter and an increased interest in larger money incomes. More things are now bought and sold, with more record keeping, and a greater dependence on services off the farm. Farm people have more outside contacts and are away from their own farms more than formerly.

Will these trends continue? If so, what proportion of farmers who do their own work with machinery will

come to accept an 8-hour day? Will they take vacations? Do farmers really have more leisure when they use machinery, or do they merely increase the size of their farming operations and the number of trips to town?

As mechanization continues, will the farm people center more and more of their recreational and social activities in the towns? Or with the telephone, electricity, radio, television, and other modern facilities will they develop recreational interests in their home and among their immediate rural neighbors that are more satisfying than the attractions now drawing them to the towns and cities?

ARTHUR RAPER,  
*Bureau of Agricultural Economics.*

## 1947 Production Goals

FARMERS can look for another year of top production in 1947, close to the wartime peaks. At the same time they will see the beginning of major adjustments in the change-over from a full wartime to full peacetime economy.

The production job farmers face next year is four-fold. First is to meet the needs of strong domestic demand. Second is the necessity of starting to build up reserves of commodities, many of which were depleted during the war, and at the same time to adjust downward the production of some commodities in line with peacetime demand. Third is to supply some of the foods and other farm products still badly needed in some war-devastated areas. Fourth is to work again toward a sound program of proper land use and soil conservation.

The production goals for 1947 are being set up on this basis. Preliminary plans for next year's goals suggest a total acreage substantially the same as that planted in 1946. However, the acreage in crops in 1947 will have to be larger than is desirable from the standpoint of long-range soil management.

There will be need for substantial shifts in many areas away from certain war-emphasized crops and other farm products, while in other areas the changes will be necessitated by fuller use of the land. As foreign countries return to normal agricultural production and America builds up needed carry-over sup-

## 1947 Goals for Some Crops

[Thousands of units]

Commodity	Unit	1947 goal	1946 indicated	1937-41 average
Wheat	Pltd. acres	71,720	71,896	60,311
Rye	Harv. acres	2,425	1,775	3,700
Dry field pens	Pltd. acres	480	512	230
Winter cover crop seeds	Harv. acres	420	364.7	209
Sugar beets	Pltd. acres	1,057	930	913
Sugar cane	Harv. acres	327	298.8	291.1
Winter flaxseed	Pltd. acres	305	294	137.4
Potatoes	Pltd. acres	2,631	2,786	2,920
Hens and pullets on farms Jan. 1	Number	435,000	469,431	376,377

plies, domestic production will necessarily be aligned more with current requirements. Demand for farm products is apt to become more variable and selective.

To help farmers with their production plans for crops planted this fall and winter, production goals and price supports have already been announced. The acreage goal figures are listed in the accompanying

table. Goals and price supports for other crops and for livestock will be discussed this fall with farmers, as in the past, with the final figures announced this winter in time to be useful to farmers in making their spring planting decisions.

**PHILLIP F. AYLESWORTH, Production and Marketing Administration**

## Implications of Rising Land Values

MOST farmers know what happened to the land market a few years after the first World War. Will similar conditions follow World War II? For the past 5 years farm land values have increased at an average rate of 1 percent a month, about the same rate as during the first war. By July 1, 1946, they were 77 percent above this 1935-39 average and 47 percent above the 1912-14 level. This is a greater increase over prewar values than was reached at the peak of the 1920 boom when land values were 70 percent above their 1912-14 level.

What is the significance of this continued sharp increase? Most directly affected are those farms that change hands. During the past 5 years somewhere between a fifth and a fourth of the farms have changed hands at least once. The remaining ones are still in the hands of the owners who acquired them prior to the World War II period of increasing values.

For this group of owners, about the only effect of the value changes lies in the amount of money they could make if they sold. The current high prices for farm land may induce

many elderly farmers who wish to retire, as well as other owners, to sell at the near-peak prices. Owners of long standing who wish to remain in farming seem little disposed to sell at this time. The future trend of land values has no pressing significance to this group at the moment.

Many of the difficulties and hardships following the World War I land boom were the result of the heavy debts contracted by buyers that could not be repaid when farm product prices and income dropped. In contrast, farmers generally are in better shape now because there have been fewer credit sales, and down payments have been larger. Approximately one-half of all farm purchases have been entirely for cash, and on the financed purchases down payments have averaged over two-fifths of the purchase price. Thus, if the high wartime land prices prove to be above the long-term earning capacity of the farms sold, the high proportion of cash sales and the substantial down payments will limit the total amount of farm distress.

Nevertheless, possible trouble lies ahead for the rather substantial number of recent purchases made with small down payments and heavy mortgaged debts. During the past 5 years credit-financed transfers have involved almost 15 percent of all farms. Although many of these original debts have been partially paid by now, almost two-thirds had an initial indebtedness of more than half the purchase price. And on many of these farms the debt is larger than the full market value a few years ago. A current debt of more than 55 percent of present average values would equal or exceed the 1935-39 average values. Available data indicate that approximately 150,000 farms a year have been purchased under these conditions.

Continued high farm production and farm income, coupled with a large accumulation of liquid funds, are the principal factors supporting the increase of land values and volume of sales. On the other hand, there are now signs pointing to more caution by prospective buyers. Farmers seem inclined to question the soundness of the current high land prices.

Subsequent developments will depend largely on changes in farm income and investment opportunities of nonfarm investors. Despite a generally favorable short-term outlook, average land values probably are much higher than is likely to be justified by long-term farm earnings. However, easy credit have encouraged some purchases and might make possible an increasing volume of mortgage-financed transfers. Moreover, if agricultural incomes decline, some farm owners may find it necessary to throw operating and production credit obligations into real-estate indebtedness, as was

often the case after the first World War. Such an occurrence would further increase long-term commitments against farm real estate.

But no great distress, even to heavily mortgaged owners, should result if average land values remain stable or continue to increase at a slower rate. But, if the prices for farm products decline, as many farmers fear they will soon after the present adjustment period, mortgaged farm owners will find themselves facing heavy fixed annual payments to be made from dwindling farm income.

Most farmers are familiar with decreasing farm incomes on the one hand and foreclosure, assignment, and bankruptcy on the other after the first World War. The financial losses were accompanied by loss of courage and ambition by those unable to meet their obligations. While bankruptcy proceedings provided an orderly method to revise untenable contractual obligations, they were not entirely satisfactory in the twenties and became even less so in the early thirties. But in the years that immediately followed other methods were developed to meet these problems.

Similar methods might be required again. On a Nation-wide basis, county voluntary farm-debt adjustment committees were pressed into service to assist distressed creditors and owners to adjust indebtedness and repayment schedules more in line with the earning capacity of farms. Restrictions on the use of deficiency judgments were employed. Additional measures might be: equitable and effective debt moratoria, and further public measures to encourage and enable private and public loan agencies to more fully serve farmers during distress periods.

J. A. BAKER  
*Bureau of Agricultural Economics*

## What's Ahead for Citrus Producers?

CITRUS growers face immediate problems with citrus production greatly expanded over what it was before the war. And production will continue to increase even with the present grove capacity because so many new trees have been planted in recent years. Depending

on how well groves are cared for and on the annual rate growers replace over-age trees, total production by 1960 may range somewhere between 185 and 250 boxes, about a 65- to 125-percent increase above the average annual production of the 1937-41 seasons.

With prospects for steadily increasing production, the problem facing citrus growers is to increase the demand along with the output. Increasing the domestic consumption of fresh oranges, grapefruit, and lemons has certain limitations because some experts believe per capita consumption in this form may be approaching a peak. Easing of the wartime shortages of alternative fruits and juices resulting in stronger competition with citrus is an important factor supporting this view.

No immediate market is yet in sight to wholly replace the large military and lend-lease takings during the war. Because strong competition between citrus-producing countries for most foreign markets will almost certainly develop, American export opportunities of fresh citrus are apt to be limited. In the past, never more than 10 percent of the crop has been exported, and future orange and grapefruit export outlets may be less than they were before the war.

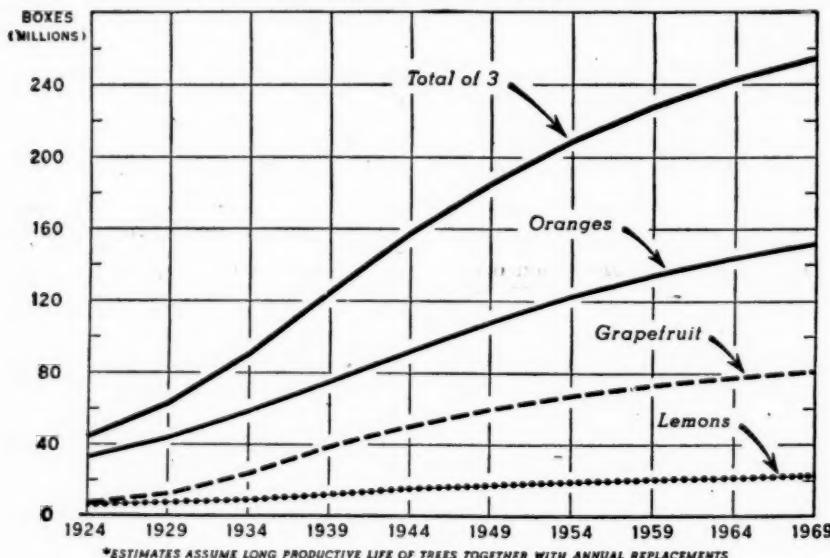
The avenues open to citrus growers in keeping demand up with increased production seem to lie in three main directions. First, to develop greater efficiency in mar-

keting methods, thereby making possible lower retail prices to stimulate greater consumption and at the same time not greatly reduce the returns to growers. Second, to expand the volume of fruit that is processed, thereby stimulating further consumption particularly during the off-season. Third, to enlarge byproduct uses, thereby stimulating further consumption and reducing processing costs.

Several recent developments may reduce marketing costs for fresh citrus. Faster schedules, improved loading practices to reduce breakage, heavier loadings of cars, portable precooling units, elimination of interstate trade barriers, and an economic choice between types of carrier, all will contribute to reduced intercity transportation and refrigeration costs. Integration of packinghouse and processing facilities reduces local hauling costs along with facilitating other economies.

Centralized packing activities, and use of the wire-bound box and the 8-pound mesh bag, reduce labor costs through mechanization and more efficient utilization of hand labor. A well-designed terminal-marketing facility would reduce cartage and other handling costs through more

#### UNITED STATES CITRUS PRODUCTION, 1924-44 AND ESTIMATES FOR 1949-69\*



\*ESTIMATES ASSUME LONG PRODUCTIVE LIFE OF TREES TOGETHER WITH ANNUAL REPLACEMENTS

efficient utilization of the time of buyers and truck drivers. Modernization of terminal-marketing facilities often reduces rent and depreciation expense. Also, in many cases markets are now located in areas where rentals are higher than necessary. Direct selling from shipper to carlot receiver and jobber and pool-car buying by merchants in towns surrounding the terminal market result in reduction in the brokerage and commissions paid.

In addition to labor economies, large-scale operation makes possible quantity discounts in the purchase of containers, wrappers, etc. The practice of packaging in the consumer-size 8-pound bag, together with a decrease in the percentage of total fruit wrapped, has resulted in economies to packer and retailer.

Growers may find it necessary to continue the present trend of putting larger quantities of fruit into processing each year. This does not mean that all processed products will find a ready outlet at good prices, but merely that grower net returns may be improved in the long run if attention is focused on the processor outlet. Under these conditions adjustments may be necessary in growers' marketing programs.

Although several wartime factors have influenced the favorable comparison of the processed price to growers since 1941, some believe that processors can continue to pay competitive prices during the next few years through economies in marketing the processed products. These include: savings in picking costs where the fruit is picked directly for processing; savings resulting from manufacture of byproducts; savings from elimination of refrigeration in transit; economies from year-round distribution; elimination of waste caused by rots, bruises, and shrinkage which occur in handling fresh fruit; more efficient distribution compared with facilities for distributing fresh fruit; and lower retail marketing costs.

Some processing plants are now a large-scale operation in which many hand operations have been replaced by automatic machinery.\* And waste is being utilized to an increasing extent by making byproducts. The customary products of the processing industry are juices, preserved by flash pasteurization, freezing, concentration, and drying; and segments frozen or canned.

Per capita consumption of canned juices during the war increased considerably because rationing restrictions were less rigid on canned citrus juices than on other fruits and vegetable juices and because of improved quality. The part of the increased national per capita consumption resulting from technological improvements which increased palatability will doubtless continue for the next few years.

Some observers predict an expanding export market for concentrates, including retail distribution. Powdered juices in the civilian market would have the advantage of being a uniform, stable product, with saving in shipping space and costs. Probably both domestic and foreign markets for canned segments can be expanded, particularly if the large amount of hand labor involved can be reduced. This would make possible a more competitive price, and do much to solve the problem of obtaining seasonal labor supply. Frozen orange juice and frozen orange and grapefruit segments are prominent among the citrus products for which packers and marketing specialists predict an expanded future outlet. Chief advantage is that of superior flavor and freshness, but this must be balanced against the higher cost of production and storage. However, these costs may decrease along with larger production and advances in freezing equipment and improvement of distribution facilities.

Byproducts developed from the citrus-processing industry include cattle feed from pulp, citrus molasses, alcohol, essential oils, seed oil, ascorbic acid, citric acid, yeast, enzyme, pectin, marmalades and jelly, bland syrup, candied peel, and brined peel. So far, byproducts have been helpful to the processors chiefly in reducing costs on the major profit items, such as single-strength juices. Though probably no one of the byproducts could be made into a major profit item, all byproducts combined might realize a sales value equivalent to or exceeding the conversion costs of the major profit item.

Cattle feed from citrus pulp and citrus pectin are among the most promising byproducts now being commercially produced. The pulp should compete favorably with other carbohydrate livestock feeds, particularly if the prewar wholesale

price of \$22 per ton can be decreased. Citrus pectin may be strongly competitive with apple pectin and may reach a substantial export market, in addition to the domestic, if the price of 35 to 50 cents per pound predicted by some manufacturers can be achieved.

Fruit products and byproducts will be in surplus from the greatly expanded citrus industry, just as fresh fruit. It will therefore be necessary to find new products and by products to expand the use of citrus. Among such new products would be grapefruit seed oil, a hard

tablet of citrus juice, and a jellied citrus juice. In future orange marketing every effort may be made to market as much fruit in processed form as the market will bear. All fruit sold fresh except the top grades may be packaged and handled by the cheapest method possible, probably in wire-bound boxes or consumer-size mesh bags. The better grades may be wrapped in cellulose or foils, packed in standard boxes or consumer packages and shipped rapidly for uses other than juicing.

HUGH L. COOK  
*Bureau of Agricultural Economics*

## Parity Prices Drop First Time in 6 Years

**P**ARITY prices for every farm product dropped 2 percent from mid-August to mid-September. This is the first decline since July 1940.

The effect of the drop in prices paid by farmers is illustrated by the automatic lowering of the parity prices of wheat and corn by 3 cents a bushel. The parity price of cotton went down a half cent a pound. Price supports and many other programs are based, by law, on some certain percentage of parity prices.

The mid-September decline was due to the sharp slump in prices farmers paid for feed and food that brought down the indexes which automatically set parity prices. However, farmers were still paying prices for things they bought in mid-September about the same as the peak following World War I and over a fourth higher than in September of last year.

The 2 percent decline from mid-August to mid-September in the index of prices farmers paid for commodities used in farm production was caused by the sharp drop in feed prices and slight drop in seed prices. These declines more than offset the slight increase in prices of fertilizers and other important production commodities. But in mid-September the production cost index was nearly 15 percent higher than in September last year and still above the peak reached in 1919 after World War I.

Sharp drops in meat and lard prices, following their return under

ceilings, were chiefly responsible for the decline in food costs which in turn was the principal item that brought the mid-September downturn in the family living price index. Other family living items in the index did not change much from mid-August. However, in mid-September farmers were paying nearly a fifth more than a year earlier for commodities used in family living.

Prices farmers received for their products in mid-September were also down 2 percent from a month earlier. Farmers, therefore, continued to get an average of 122 percent of parity for the things they sold, which is about the same as the World War I peak and slightly higher than a year ago.

The decline in the index of prices received by farmers in mid-September was caused by the downturn in prices of livestock and livestock products which averaged 5 percent. The \$5.20 drop in hog prices was chiefly responsible even though prices of cattle, calves, and lambs also were lower. Prices of dairy and poultry products went up, as did prices for sheep. Crop prices averaged a little higher in mid-September than in mid-August, despite lower prices for corn, cottonseed, \*potatoes, and truck crops.

Details of prices received, prices paid, and parity prices are published at the close of each month, as of the middle of the month, by the Bureau of Agricultural Economics in its report, *Agricultural Prices*.

## Economic Trends Affecting Agriculture

Year and month	Industrial production (1935-3 = 100) <sup>1</sup>	Income of industrial workers (1935-3 = 100) <sup>1</sup>	1910-14=100			Index of prices received by farmers (August 1909-July 1914=100)			
			Wholesale prices of all commodities <sup>2</sup>	Prices paid by farmers		Farm wage rates <sup>3</sup>	Livestock and products		
				Commodities	Commodities, interest, and taxes		Dairy products	Poultry and eggs	Meat animals
1910-14 average	58	50	100	100	100	100	101	101	101
1915-19 average	72	60	158	151	150	148	154	163	158
1920-24 average	75	122	160	161	173	178	151	163	142
1925-29 average	68	129	143	155	168	179	160	155	148
1930-34 average	74	78	107	122	135	115	105	94	93
1935-39 average	100	100	118	125	128	118	111	119	117
1940-44 average	1.2	237	139	150	148	212	162	146	171
1945 average	203	286	154	180	174	350	197	196	210
<i>1945</i>									
September	167	230	154	181	174	—	197	210	207
October	162	225	155	182	175	345	199	204	202
November	168	221	156	182	175	—	202	218	203
December	168	233	156	183	176	—	204	222	207
<i>1946</i>									
January	160	235	156	184	177	361	203	197	206
February	153	218	157	185	178	—	202	168	214
March	168	238	159	187	180	—	201	167	210
April	165	244	161	188	181	362	199	166	225
May	159	245	162	182	185	—	198	173	207
June	171	263	165	196	188	—	207	178	230
July	174	263	182	201	19	373	245	16	268
August			188	214	204	—	257	199	24
September			210	200	—	—	271	221	249

Year and month	Index of prices received by farmers (August 1909-July 1914=100)								Parity ratio <sup>4</sup>	
	Crops									
	Food grains	Feed grains and hay	To-bacco	Cotton	Oil-bearing crops	Fruit	Truck crops	All crops		
1910-14 average	100	101	102	96	98	99	—	99	100	
1915-19 average	1.3	164	187	168	187	125	—	168	162	
1920-24 average	147	126	1.2	18	149	148	143	160	151	
1925-29 average	140	119	172	145	129	141	140	143	149	
1930-34 average	70	78	119	74	72	94	106	86	90	
1935-39 average	94	95	175	83	103	83	102	97	107	
1940-44 average	123	119	245	131	150	133	172	143	154	
1945 average	172	161	366	171	215	220	224	201	202	
<i>1945</i>										
September	167	157	365	175	213	217	159	191	197	
October	175	160	373	180	210	219	181	196	199	
November	178	161	375	182	213	217	235	203	205	
December	178	162	378	184	213	230	223	206	207	
<i>1946</i>										
January	179	164	375	180	213	225	240	207	206	
February	180	166	385	186	212	233	275	213	207	
March	185	171	367	183	208	22	283	215	209	
April	185	171	368	180	210	244	232	220	212	
May	1.8	188	369	174	214	248	177	215	211	
June	200	1.5	370	210	213	261	185	223	218	
July	215	244	369	24	242	24	163	240	244	
August	203	225	388	271	242	271	162	233	241	
September	2.7	221	396	285	236	210	154	236	243	

<sup>1</sup> Federal Reserve Board; represents output of mining and manufacturing; monthly data adjusted for seasonal variation.

<sup>2</sup> Computed from data furnished by Bureau of Labor Statistics and Interstate Commerce Commission on pay rolls in mining, manufacturing, and transportation; monthly data adjusted for seasonal variation. Revised May 1946.

<sup>3</sup> Bureau of Labor Statistics.

<sup>4</sup> Monthly data adjusted for seasonal variation.

<sup>5</sup> Ratio of prices received to prices paid for commodities, interest, and taxes.

<sup>6</sup> Revised.

<sup>7</sup> 1924 only.

## ECONOMIC SUMMARY

**F**ARMERS have done it again. They are hanging up another crop production record this year. Despite cool weather and unfavorable growing conditions for late maturing crops in important producing areas during August and September, their total crop production this year will be some 2 percent more than their previous all-time record in 1942, when the weather was as ideal as it has ever been.

The largest wheat crop in history is harvested. The largest corn crop on record now seems virtually assured. Other record crops are tobacco, pears, peaches, plums, and truck crops as a group.

Near-record crops of oats, rice, potatoes, peanuts, grapes, cherries, and sugarcane are practically certain. Average or better crops are in prospect for hay, soybeans, dry peas, prunes, apricots, and sugar beets.

Production of cotton, rye, sorghum for grain, flaxseed, buckwheat, dry beans, sweetpotatoes, and pecans will be well below average.

Aggregate production of food and feed grains will be the largest in history, tobacco the largest, fruits and vegetables as a group a near-record, oil crops above average, and cotton well below average.

Despite this record production, farmers can look for a strong demand this winter for practically all farm products at good prices, generally higher than a year ago though below the high levels in July and August. Consumer incomes will continue near the wartime peak of early 1945, though people are not saving as much now as a year ago because they seem to be depositing more in food stores than in banks.

### Feed

**F**EED supply prospects for this coming fall and winter are one of the most favorable in recent years. Supplies of feed grains will be the second largest tonnage on record and the largest per animal unit. Byproduct feed supplies for the coming season probably will be larger than in the past year, both in total tonnage and on a per animal unit basis.

Farmers are now harvesting the largest corn crop in history and this

year produced the second largest crop of oats. Barley and sorghum grain production, however, is smaller than a year ago and below average. The crop of new hay together with record carry-over stocks will provide liberal supplies of hay per animal unit during the coming year.

Because farmers probably will market large quantities of corn and oats this coming winter and spring, livestock producers in deficit feed areas and grain processors will have much less difficulty than a year ago in obtaining adequate supplies. Over-all demand for feed during the next several months will not be as strong as last season because of the reductions in livestock numbers and the sharp decline in poultry numbers. As liberal quantities of feed grain will be available, wheat feeding during the current feeding season is expected to be substantially less than a year ago.

The supply of feed grains for 1946-47 season will be about 138 million tons, indicating a supply per animal unit next January 1 about 10 percent larger than in 1945-46. Reserves of corn probably will be substantially larger on October 1, 1947, than on October 1 this year. Carry-over of oats also is expected to be larger than the large stocks on July 1 this year.

Prices of feed grains probably will average slightly higher this fall and winter than during this period a year ago. Hay prices may average at least as high as a year ago.

### Livestock

**R**ECENT adjustments in price ceilings of meats and livestock will permit livestock producers to sell their livestock at prices 10 to 15 percent more than the near-record prices received in the first half of 1946 though well below the all-time peaks of July and August.

During the next 2 to 3 months producers will market many fewer animals than they did during the near-record movement this summer despite the exceptionally strong consumer demand for meat. Thus meat supplies in the next few months will be far short of demand at present ceilings.

Farmers probably will not materially increase the number of sows for farrow in the 1947 spring season, even though hog ceilings have been increased. The prospects of lower corn prices will not be enough to bring the hog-corn price ratio much above average and thus encourage a large crop. However, feed supplies in the months ahead will be enough to feed out a considerably larger spring pig crop in 1947 than now seems likely. Farmers will feed the hogs now on farms to unusually heavy market weights this winter.

Cattle feeders, having access to ample feed supplies and large numbers of cattle available for feeding together with increased ceilings for high-grade cattle, will grain feed more cattle this winter than they did last winter. However, the strong slaughter demand for most grades of cattle will keep up the prices of feeder cattle.

Ranchers and farmers are continuing to reduce their stock sheep numbers, making the prospective decline this year about the same as the 8-percent reduction in 1945.

This will undoubtedly result in a smaller lamb crop in 1947 than even the small one this year, which will mean a smaller lamb slaughter and smaller lamb supplies in 1947. Having large feed supplies, lamb feeders in the Corn Belt and principal feeding areas of the West will create a strong demand for feeder lambs this fall and winter.

## Dairy Products

**D**AIRY farmers can look for a continued strong demand for dairy products throughout the remainder of 1946 and well into 1947. As milk production declines seasonally this fall there will be increasing competition among buyers for available milk supplies. Consequently, returns to farmers in the coming months will be by far the highest on record.

Average sales by farmers will be only slightly smaller than in the comparable period of 1945 so cash receipts from dairying also will reach new highs. But increases in cash receipts will not be all net gain,

## Prices of Farm Products

[Estimates of average prices received by farmers at local farm markets based on reports to the Bureau of Agricultural Economics. Average of reports covering the United States weighted according to relative importance of district and State]

Commodity	5-year average		Sept. 15, 1945	Aug. 15, 1946	Sept. 15, 1946	Parity price Sept. 15, 1946
	August 1909- July 1914	January 1935- December 1939				
Wheat (bushel) . . . . .	0.884	0.837	1.45	1.78	1.79	1.77
Rice (bushel) . . . . .	.813	.742	1.68	1.77	1.88	1.63
Corn (bushel) . . . . .	.642	.691	1.12	1.80	1.73	1.28
Oats (bushel) . . . . .	3.99	.340	.583	.734	.747	.798
Hay (ton) . . . . .	11.87	8.87	14.30	15.10	15.40	23.70
Cotton (pound) . . . . .	12.4	10.34	21.72	33.55	35.30	24.80
Soybeans (bushel) . . . . .	dollars	.954	2.07	2.35	2.13	1.92
Peanuts (pound) . . . . .	cents	4.8	3.55	8.29	8.88	9.60
Potatoes (bushel) . . . . .	dollars	.697	.717	11.37	1.43	1.47
Apples (bushel) . . . . .	do	.96	.90	2.84	2.27	2.37
Oranges on tree, per box . . . . .	1.81	1.11	2.12	2.91	3.01	2.37
Hogs (hundredweight) . . . . .	do	7.27	8.38	14.10	20.90	15.70
Beef cattle (hundredweight) . . . . .	do	5.42	6.56	11.80	17.00	15.20
Veal calves (hundredweight) . . . . .	do	6.75	7.80	12.90	16.20	15.50
Lambs (hundredweight) . . . . .	do	5.88	7.79	12.50	16.30	15.00
Butterfat (pound) . . . . .	cents	26.3	29.1	45.4	70.8	75.6
Milk, wholesale (100-pound) . . . . .	dollars	1.60	1.81	13.22	14.25	14.37
Chickens (pound) . . . . .	cents	11.4	14.9	26.4	27.6	29.3
Eggs (dozen) . . . . .	do	21.5	21.7	39.6	39.1	44.5
Wool (pound) . . . . .	do	18.3	23.8	41.5	41.8	44.1

<sup>1</sup> Revised.

<sup>2</sup> Comparable base price, August 1909-July 1914.

<sup>3</sup> Comparable price computed under section 3 (b) Price Control Act.

<sup>4</sup> Comparable base price, August 1919-July 1929.

<sup>5</sup> Does not include dairy production payments made directly to farmers by county PMA offices October 1943 to June 1946.

<sup>6</sup> Adjusted for seasonality.

<sup>7</sup> Preliminary.

as production costs also have advanced over previous levels.

Through better care of herds and selection of improved stock, farmers have increased the average output per cow to new highs in recent years. The average production per cow in 1945 was 4,789 pounds per cow and will be around 4,850 in 1946. Production per cow in 1945 ranged from a low of 3,000 pounds in Mississippi to over 7,000 pounds in California.

Improvements in feeding, breeding, and management of dairy cows were emphasized during the war by the 8-point dairy program. Some of these developments are just beginning to show up in greater production per cow. Others will not be apparent in increased output per cow for several years, but all will contribute to an upward trend in output per cow and reduced production costs.

Artificial insemination of dairy cows, first introduced on a commercial scale in 1938, has grown rapidly in recent years. The first of this year there were a half million cows being artificially bred. By the first of next January the number may approach three-quarters of a million. The shortage of technicians during the war had prevented more rapid growth but new training programs, especially the college short courses, are rapidly overcoming the shortages. Even though a small proportion of the total cows of the country are now bred artificially, the potentialities of increasing production per cow are great because farmers with small herds can obtain the benefits of better quality bulls at small costs.

### Poultry and Eggs

TURKEY and broiler growers in the next few months will receive returns likely to exceed any previous month on record. Farmers will also receive seasonally good prices for their eggs, about as high as in recent years.

Sales of turkeys during the 1946 marketing season will be moderately below last year since the number of turkeys is 9 percent less. However, large cold storage stocks and a sharp reduction in Army procurement will make at least as much turkey available to civilians as last year. A high level of consumer purchasing power and moderately short meat supplies will aid turkey growers in receiv-

ing high prices, despite the large supplies.

Slaughter of chicken meat during the next few months, although at a seasonal peak, will be below last year. The basis for the sharp reduction was made when the number of chickens raised in 1946 declined 18 percent from 1945. Furthermore, the tight feed situation resulted in a decrease in commercial broiler output during the summer months. However, broiler growers will undoubtedly expand their operations substantially in the next few months.

Supplies of eggs are currently large despite a moderate reduction in output. The large cold storage stocks are more than offsetting the decrease in output; but top-quality eggs, because of the higher level of consumer purchasing power and seasonally short supplies, will continue to bring favorable prices to farmers.

### Fruit

FRUIT growers this season are producing a near-record crop of deciduous fruit, the largest since 1937. Total production of the principal deciduous fruits will be about 17 percent larger than in 1945 and 12 percent larger than average.

Most of this increase over last year's total output is in the commercial apple crop which is nearly three-fourths larger than the record small crop last year though only about average in size. Apple growers in the eastern and central States, where most of the increase has taken place, are producing more than three times the low production of 1945, yet slightly below average. In the western States growers are coming up with a crop slightly larger than the near-average one last year.

Record large crops of peaches, pears, plums, almonds, and filberts have been produced this year, while the crops of cherries, apricots, grapes, and walnuts are near record.

The abundance of deciduous fruits this year plus a strong demand for canned fruits are leading to an expected record large pack of canned fruits. On the other hand, the pack of dried fruits may be slightly smaller this year than last.

Demand for fruit this year continues strong, resulting in prices well above prewar levels. Despite this strong demand, season average

prices received by growers are expected to average lower than in 1945 for apples, pears, peaches, plums, almonds, and filberts, mainly because of the larger crops. However, season average prices probably will be somewhat higher for fresh grapes, raisins, and dried prunes.

Prices for deciduous fruits generally have been declining seasonally this summer as marked shipments have increased but are expected to advance this fall and winter on sales from storage.

Only fresh oranges among the fresh fruits and various canned fruits and fruit juices were continued under price control on September 1 after being certified by the Secretary of Agriculture as in short supply at that time. Certain jams, jellies, and related fruit products containing at least 20 percent sugar also were continued under price control. On the other hand, various other fresh and processed fruits were automatically removed from price control on September 1 because they were not certified as being in short supply.

### Vegetables

FARMERS are on the "home-stretch" of another year of record production of commercial truck crops, a near-record crop of potatoes, and a crop of dry field peas nearly 50 percent larger than the 1935-44 average. They produced an average crop of sweetpotatoes and a dry edible bean crop about 10 percent below average.

Growers of commercial truck crops for fresh market completed the summer season with an output one-fifth larger than last year and one-third above average. In spite of the damage done by widespread blight in Pennsylvania and Ohio and continued dry weather in Michigan and Illinois, farmers produced a summer crop of tomatoes one-tenth larger than last season and about one-sixth larger than average. The late summer crop of dry onions, the principal source of the onions which will be stored to supply fall and winter markets, was a new record. Prices received by growers for dry onions have tumbled practically to prewar levels.

Prospects are for a total early fall production of fresh market truck crops slightly larger than last year and not quite one-half larger

than average. While early fall production of cucumbers and green peas is expected to be moderately below average and less than the 1945 output, the general abundance of many other fresh vegetables probably will weaken the demand for these two short items.

Total production of truck crops for processing is expected to set a new high this year, with record quantities expected to be canned and frozen. Because of continued strong demand and present low stocks, it probably will be several months before the flow of new packs to retail stores catches up with demand.

Farmers are now completing the harvest of a total potato crop only about 10 million bushels below the record 465 million bushels produced in 1943. The substantial part of this year's large output resulting in the surplus over demand was produced in the early and intermediate States and has already been sold or drawn off the market by the Government's extensive support operations. Production in the 30 late States is some 28 million bushels less than the record harvested in 1943 and only about 6½ million bushels larger than last year's production. Metropolitan markets should have adequate supplies to meet the expected firm demand all winter.

The sweetpotato crop is slightly below average, and also slightly below the output last year when sweetpotatoes brought ceiling prices throughout most of the season.

The 14¾ million bag crop of dry edible beans for this year is one-twelfth larger than last year but about one-tenth smaller than average. Dry beans probably will again bring ceiling prices and be short of demand before the season ends.

The anticipated crop of dry field peas, however, is nearly one-half larger than average and more than one-fifth larger than last year. At the same time, total demand for dry peas this season may be weaker than last season because of reduction in military needs and the general abundance of fresh vegetables.

### Cotton

COTTON growers are entering the 1946 harvest season with cotton prices at the highest level since 1920, now averaging over 35 cents per pound. Should the 1946 crop, as

estimated September 9, be marketed at prices about equal to those prevailing in mid-September, cash receipts from cotton and cottonseed will approximate 1 3/4 billion dollars. Not since 1925, when slightly over 16 million bales were harvested, have farmers received as high returns from their crop.

The present favorable cotton situation in the United States is the result of several factors. Beginning with the 1940-41 season, domestic consumption continued at exceptionally high levels during the war and has declined only slightly since the end of hostilities. In addition, the 1945 and 1946 crops were two of the three smallest in 50 years. Furthermore, exports have increased from the wartime low of 1.1 million bales in 1941 to 3.5 million bales in

1945. As a result, the carry-over in this country was reduced to 7 1/2 million bales on August 1, 1946, compared with 13 million bales for the same date in 1939 and the 1935-39 average of 8 1/2 million bales. The carry-over on August 1, 1947, probably will be at the lowest level since 1929.

Certain forces of an unfavorable nature are present in the general picture that should not be overlooked. Supplies of a few clothing items are beginning to catch up with consumer demand at current prices. Also, as increased supplies of durable goods (automobiles, furniture, refrigerators, etc.) become available, consumer expenditures will shift, to some extent, with a smaller proportion spent on clothing.

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